

SSI Technologies MediaSensor™

P51 Pressure Transducers

Product Description

SSI's line of bulk micro-machined, absolute and gage pressure transducers and transmitters for both harsh and benign media with the superior **accuracy of $\leq \pm 0.5\%$** represents a significant cost savings over currently available pressure transducers. These compact, robust transducers measure pressures from 15 Psi to 3,000 Psi and are well suited for a variety of automotive, industrial and commercial applications. SSI, a leading OEM supplier of automotive sensors...having delivered more than 100 million sensors to its customers, offers the **MediaSensor™**, targeted at industrial and commercial applications where cost, size, and performance are critical.

Typical Applications

- | | |
|--------------------|--------------------|
| ■ Refrigeration | ■ Pneumatics |
| ■ Fuel Cells | ■ Compressors |
| ■ Pumps | ■ Flow |
| ■ Hydraulics | ■ Robotics |
| ■ Process Control | ■ Agriculture |
| ■ Spraying Systems | ■ Hydrogen Storage |

Standard Full Scale Pressure Ranges

- 15, 50, 75, 100, 200 and 300 Psig
- 500, 750, 1000, 1500, 2000 and 3000 Psis
- 15, 50, 75, 100, 200, 300, 500, 750, 1000, 1500, 2000 and 3000 Psia

- ✓ **Improved Accuracy**
- ✓ **Lower Pressure Ranges**
- ✓ **M12 & Mini DIN Connectors**
- ✓ **Custom Designs Available**



MediaSensor™ with integrated signal conditioning

Special Features

- **Superb Accuracy** – $\leq \pm 0.5\%$
- **Robust Package** – All laser-welded stainless steel design for optimal media isolation
- **Maximum Flexibility** – Custom ASIC provides signal conditioning for calibration and temperature compensation
- **Standard and custom options available**
- **Compact size, excellent price/performance ratio**
- **5 Volt input with 0.5 – 4.5 Volt output**
- **8 – 30 Volt input with 4 – 20 mA & 1 – 5 Volt output**

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Performance Specifications (all values at 22°C unless noted otherwise)

| Output Type | | 0.5 to 4.5 Volts | 4 – 20 mA | 1 – 5 Volts |
|--|-------------|---|---|---|
| Accuracy ¹ | 75-3000 PSI | < 0.50% FS | < 0.50% FS | < 0.50% FS |
| | 15-50 PSI | < 1.00% FS | < 1.00% FS | < 1.00% FS |
| Thermal Error <i>(-40°C to 105°C)</i> | 75-3000 PSI | < 0.50%FS | < 0.50%FS | < 0.50%FS |
| | 15-50 PSI | < 1.00% FS | < 1.00% FS | < 1.00% FS |
| Total Error | 75-3000 PSI | < 1.0% FS | < 1.0% FS | < 1.0% FS |
| | 15-50 PSI | < 2.0% FS | < 2.0% FS | < 2.0% FS |
| Stability (Typical) | | < 0.25%FS/Year | < 0.25%FS/Year | < 0.25%FS/Year |
| Zero Pressure Offset ² | | 0.50 V | 4.0 mA | 1.0 V |
| Full Scale Output ³ | | 4.5 V | 20 mA | 5.0 V |
| Operating Temperature | | -40 to 105°C | -40 to 105°C | -40 to 105°C |
| Storage Temperature | | -40 to 105°C | -40 to 105°C | -40 to 105°C |
| Proof Pressure | | 3 x FS | 3 x FS | 3 x FS |
| Burst Pressure <i>Absolute Pressure Transducers</i> | | 10 x FS or 15,000 Psia (whichever is less) | 10 x FS or 15,000 Psia (whichever is less) | 10 x FS or 15,000 Psia (whichever is less) |
| Burst Pressure <i>Gage Pressure Transducers</i> | | 5 x FS | 5 x FS | 5 x FS |

Electrical Specifications

| Output Type | 0.5 to 4.5 Volts | 4 – 20 mA | 1 – 5 Volts |
|-----------------------------|---------------------------------|----------------|---------------------------------|
| Supply Voltage | 5 +/- 0.5 | 8 to 30 Volts | 8 to 30 Volts |
| Supply Current | < 5 mA | Not Applicable | < 5 mA |
| Output Current | 0.45 mA Max (Sink or Source) | Not Applicable | 0.45 mA Max (Sink or Source) |
| Response Time | < 1 ms | < 1 ms | < 1 ms |
| Reverse Polarity Protection | N/A | Yes | Yes |

Reliability And Environmental Performance

| | Test Conditions | Value | Units |
|--|---|----------------------|--------|
| Wetted Materials | 304L & 316L Stainless Steel | — | — |
| Pressure/Temperature Cycles ⁴ | 0 to FS @ 8Hz; and -40°C to 105°C | >1.8x10 ⁶ | Cycles |
| Thermal Shock | 105°C to -40°C, 0.5 hr soaks at Temp. (2s Transfer) | 250 | Cycles |
| Vibration | 10 to 2050 Hz, 20 Sinusoidal, 3 Axes | 144 | Hours |
| EMC Compatibility | 80 MHz - 1 GHz | 100 | V/M |
| Humidity | 85°C and 90% to 95% R. H. | 250 | Hours |
| Weight | Model 51 with M12 x 1.5 6g 304L Stainless Port | ≤85 | Grams |

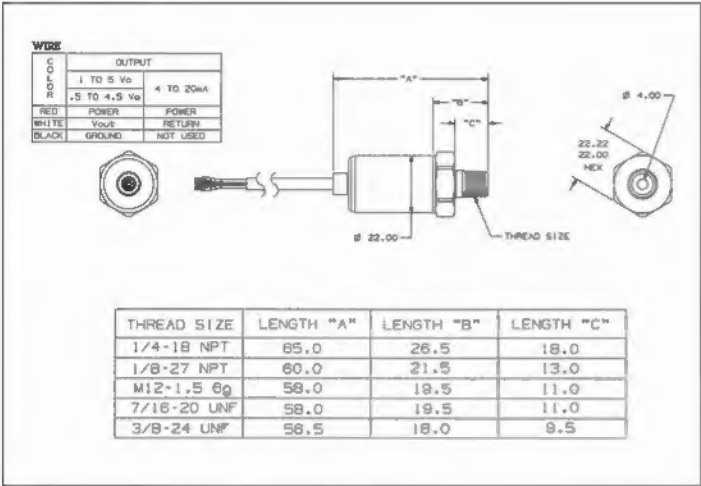
¹ Includes hysteresis, repeatability and non-linearity (BFSL)

² Transducer output @ 0 Psia, 0 Psig, or 0 Psis (consult factory for other options)

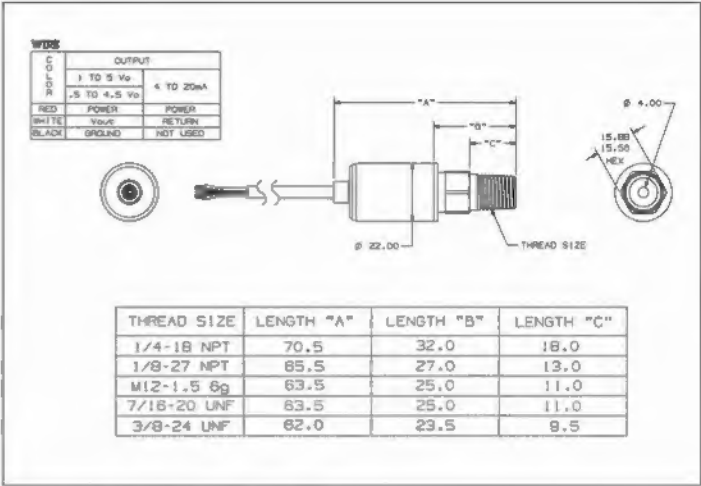
³ Transducer output @ Pressure Range +14.5 Psia

⁴ Pressure cycling performed at rated full scale pressure

Standard Packaging Options

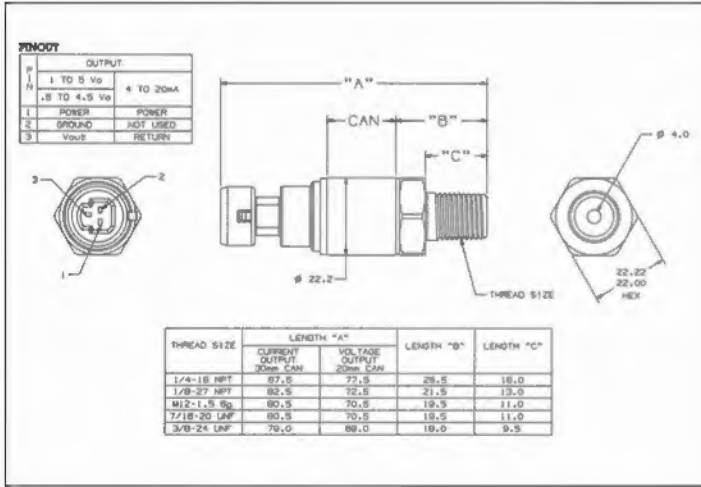


Integral Harness with 22mm Hex

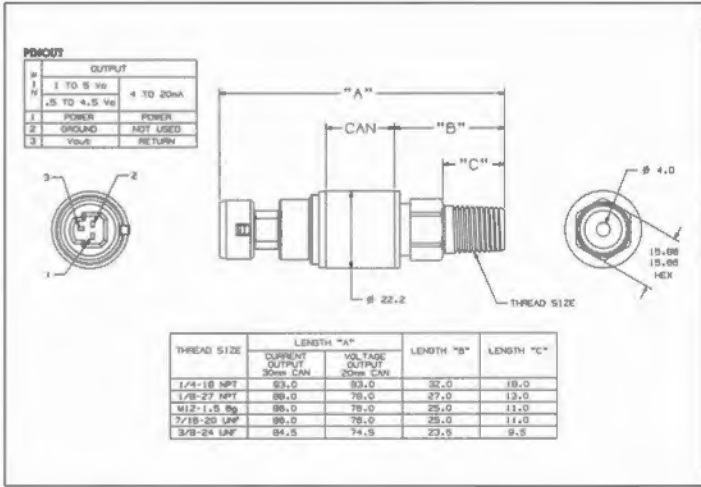


Integral Harness with 5/8" Hex

Harness Construction: PVC Jacketed 24 AWG Wire



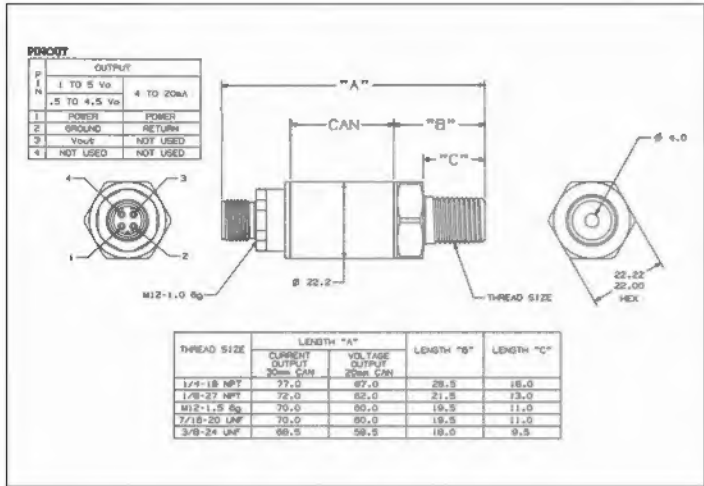
Packard Connector with 22mm Hex
8 - 30 Vdc Input : 1 - 5 Vdc Output



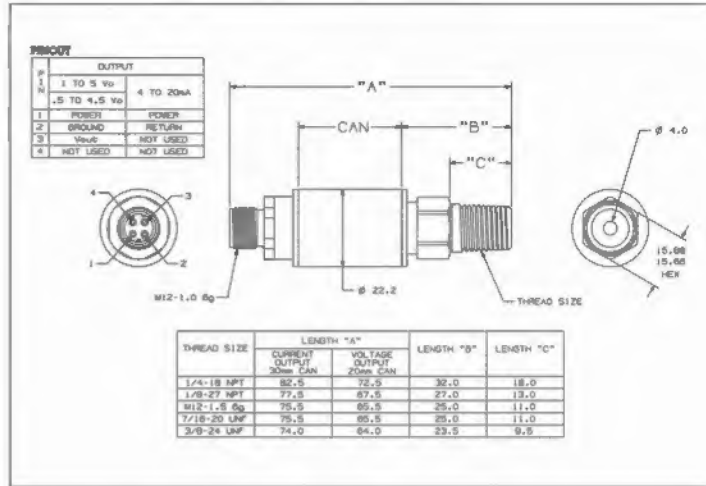
Packard Connector with 5/8" Hex
8 - 30 Vdc Input : 1 - 5 Vdc Output

Mating Packard Connector P/N 12065287 and Mating Packard Terminal P/N 12103881

Standard Packaging Options (Continued)

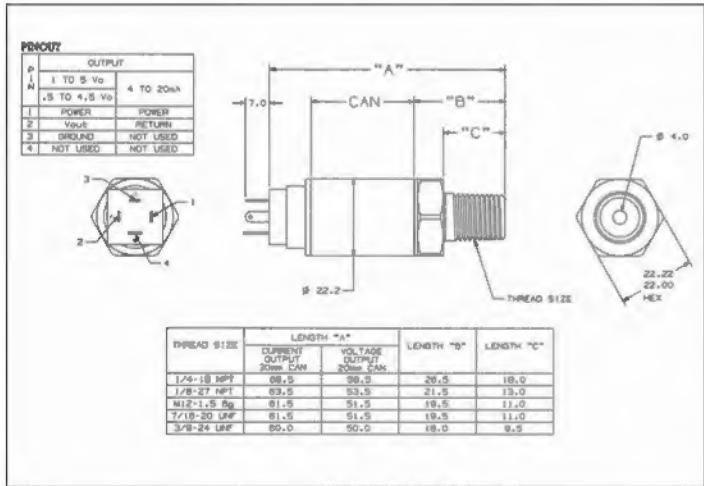


M12 4 Pin Micro Connector with 22mm Hex

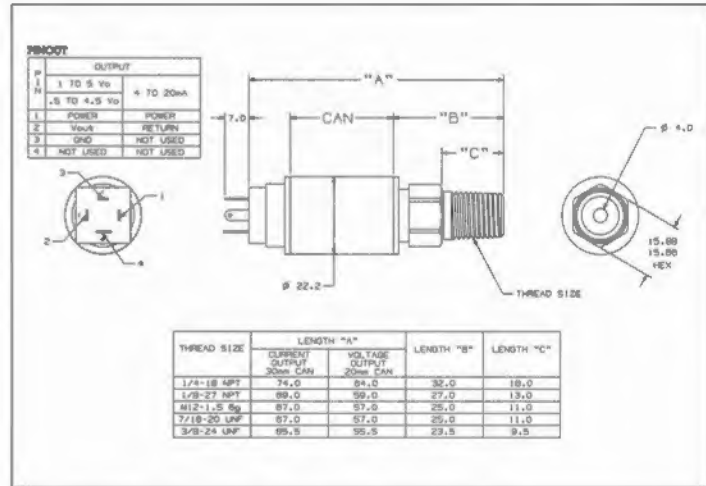


M12 4 Pin Micro Connector with 5/8" Hex

For MediaSensor™ with M12 4 Pin Micro Connectors use the 30mm CAN designation above



DIN 43650 Micro-mini Connector with 22mm Hex



DIN 43650 Micro-mini Connector with 5/8" Hex

For MediaSensor™ with 43650 Micro-mini Connectors use the 30mm CAN designation above

Mating Connectors Available



P2431.3 – 6" Cable P2432.3 – 12" Cable P2433.3 – 18" Cable
P2434.3 – 24" Cable P2435.3 – 36" Cable



14236.1



14188.1



14210.1

Pressure Transducer Ordering System

The following explains SSI's pressure transducer order number sequence.

Example → **P51 - 500A - A - P - 4.5V**

| Product Family | Pressure Ranges | Port Configuration | | Connector | Output Options |
|---------------------|-----------------|--------------------|------|---------------|-----------------------|
| P51- Media Sensor | 15 (G) | Hex | Port | P – Packard | 4.5V – 0.5 to 4.5V |
| Custom Call Factory | 50 (A or G) | A | 22mm | 1/4 – 18 NPT | (5V input only) |
| | 75 (A or G) | B | 22mm | 1/8 – 27 NPT | |
| | 100 (A or G) | C | 22mm | M12 – 1.5 6g | 5V – 1 to 5V |
| | 200 (A or G) | D | 22mm | 7/16 – 20 UNF | (8 to 30V input only) |
| | 300 (A or G) | E | 22mm | 3/8 – 24 UNF | 20mA – 4 to 20mA |
| | 500 (A or S) | F | 5/8" | 1/4 – 18 NPT | (8 to 30V input only) |
| | 750 (A or S) | G | 5/8" | 1/8 – 27 NPT | |
| | 1000 (A or S) | H | 5/8" | M12 – 1.5 6g | |
| | 1500 (A or S) | I | 5/8" | 7/16 – 20 UNF | |
| | 2000 (A or S) | J | 5/8" | 3/8 – 24 UNF | |
| | 3000 (A or S) | | | | |

Notes:

1. A, G, or S designates Absolute, Gage or Sealed Gage Pressure
2. Calibration of the transducer is as follows:
 - a. Absolute Transducers are calibrated to have 0.5 Vdc, 1 Vdc, or 4 mA respectively at 0 Psia
 - b. Gage Transducers are calibrated to have 0.5 Vdc, 1 Vdc, or 4 mA respectively at 0 Psig
 - c. Sealed Gage Transducers are calibrated to have 0.5 Vdc, 1 Vdc, or 4 mA respectively at 0 Psig
3. Sealed Gage Sensors are not vented to atmosphere, but are calibrated to resemble a gage sensor output per the above note.

Robust, Cost-Effective Sensors for Global Applications



To place an order, or for custom orders or specifications not listed, call SSI toll-free at **(888) 477-4320**.

Limited Warranty

All SSI products are warranted against defective materials and workmanship for a period of one (1) year from the date of delivery to the original purchaser. Any product that is found to be defective within the one year period will be replaced or repaired at the discretion of SSI. THIS WARRANTY IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED, OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, PERFORMANCE, OR OTHERWISE. SSI is not an expert in the customer's technical field and therefore does not warrant the suitability of its products for the applications selected by the customer. SSI accepts no responsibility for misuse, misapplication or unauthorized modification of its products. SSI's obligation under this limited warranty is strictly and exclusively limited to the repair or replacement free of charge of such products as are to be found to be defective in material or workmanship on the condition that the purchaser gives prompt written notice to SSI of any claim to breach of warranty within the warranty period, and if requested, returns the defective product(s) to SSI. SSI will not assume any expenses or liability for repairs made to its products outside of its plant without its prior written consent. SSI reserves the right to satisfy its warranty obligation in full, with respect to defective products, by the payment to the purchaser of all sums paid by the purchaser to SSI for such products. IN NO EVENT SHALL SSI BE LIABLE FOR CLAIMS (BASED UPON BREACH OR EXPRESS OR IMPLIED WARRANTY, NEGLIGENCE OR OTHERWISE) FOR ANY DAMAGES, WHETHER DIRECT, IMMEDIATE, INCIDENTAL, FORESEEABLE, CONSEQUENTIAL, OR SPECIAL. SSI reserves the right to change its specifications at any time without notice.

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